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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/771,405 | 02/05/2004 | Gerwin Preisinger | 024943-057 | 3822 |

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| EXAMINER |
|---|
| THOMAS, LUCY M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2836 | |

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/771,405 | PREISINGER ET AL. | |
| | Examiner | Art Unit | |
| | Lucy Thomas | 2836 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *29 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Susumu et al. (JP 10 014159). Regarding Claim 1, Susumu et al. discloses a device (see Abstract and drawings 1-5) for protecting 4 a bearing of an electrical machine against damaging passage of current, wherein the electrical machine comprises a stator 5 and a rotor 2 pivotally mounted relative to the stator by the bearing, the device comprising a compensation circuit (see 12, 10 in Figure 3) for producing a compensation current which compensates for a parasitic current arising during operation of the electrical machine and passing through the bearing and a coupling element (see 14 in Figure 3 or Cw in Figure 2) for direct or indirect coupling of the compensation current into the bearing. The compensation circuit 12 is designed with frequency characteristics corresponding to the frequency of the shaft current, for a presupposed reduction or such that the shaft current is lost (see [0018]), and the compensating circuit produce compensating current which compensates for the parasitic current, and the Susumu reference meets the limitations.

Regarding Claim 2, Susumu et al. discloses the compensation circuit, which comprises a point at which phase voltages for operation of the electrical machine are

found (see figure 3). The recitation of star point is to indicate a point at which the sum of phase currents is zero and sum of and phase voltages is zero, and the recitation of artificial is to indicate that the phase-to-neutral values are artificial, in a 3-wire wye configured system.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Susumu et al. (JP 10 014159) in view of Desai et al. (US 6, 449, 567). Regarding Claim 3, Susumu does not disclose three identical impedances, which forms the artificial star point. Desai et al. discloses three impedances Za, Zb, and Zc, which form the artificial star point 51 (Figure 2). It would be obvious to include the identical impedances, which necessarily is part of generating an artificial star point in three phase systems, as shown in the drawings to simplify and facilitate connection of a conventional three phase protection circuit to the device taught by Susumu.

5. Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Susumu et al. (JP 10 014159) in view of Desai et al. (US 6, 449, 567) and Baumgartl et al. (US 5,859,529). Regarding Claim 4, neither Susumu or Desai disclose the device, wherein the compensation circuit also comprises a polarity reversal transformer having

a primary side to which the star point voltage is supplied at least in part and a secondary side which produces a voltage opposite in phase to the star point voltage. Baumgartl discloses a voltage transformer T1, having a primary side to which star point voltage is supplied at least in part and a secondary side which produces a voltage opposite in phase to the star point voltage (Figure, Column 1, lines 50-65, Column 2, lines 18-32). It would be obvious to those skilled in the art to use a transformer to obtain a voltage of opposite phase, because voltage transformers are particularly useful in cases where inductive voltages cannot be used because of the transformers' size and price.

Regarding Claim 5, neither Susumu or Desai disclose the device, wherein the compensation circuit also comprises an amplitude matching stage connected between the artificial star point and the polarity reversal transformer, the amplitude matching stage applying an adjustable fraction of the star point voltage to the polarity reversal transformer. Baumgartl discloses an amplitude matching stage connected between the artificial star point and the polarity reversal transformer T1, the amplitude matching stage applying adjustable fraction of the star point voltage to the polarity reversal transformer (Figure, Column 1, lines 50-65, Column 2, lines 18-32). It would be obvious to those skilled in the art to include an amplitude matching stage to maximize the power transfer by nullifying the effect of scattered-in interference voltages. Claim 6 only recites conventional functional feature of a transformer, having several winding taps to provide various levels of output voltages on the secondary stage.

Regarding Claim 7, Susumu discloses a frequency response matching stage (see 14 of 12a in Drawing 4 and [0017]). In the above-mentioned combination, the polarity reversal transformer would be connected on the secondary side to an input of the frequency matching stage, which equalizes a frequency response of the compensation current to the parasitic current.

Regarding Claim 8, Susumu discloses a device, wherein an output of the frequency matching stage is connected to the coupling element, Cw (Drawing 2, [0012]). Regarding Claim 9, Susumu discloses a device, wherein the coupling element is arranged such that coupling of the compensation current takes place into a rotor shaft of the rotor by which the rotor in the bearing is pivotally mounted ([0016], [0017]). Regarding Claim 10, Susumu discloses a device, wherein the coupling element is a capacitor (see Cw in Drawing 2, and [0016]).

6. Claims 11-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Susumu et al. (JP 10 014159) in view of Baumgartl et al. (US 5,859,529). Claims 11-17 recite the elements of Claims 4-10, except the additional dependence on Claim 3. Regarding Claim 11, Susumu does not disclose the device, wherein the compensation circuit also comprises a polarity reversal transformer having a primary side to which the star point voltage is supplied at least in part and a secondary side which produces a voltage opposite in phase to the star point voltage. Baumgartl discloses a voltage transformer T1, having a primary side to which star point voltage is supplied at least in part and a secondary side which produces a voltage opposite in phase to the star point voltage (Figure, Column 1, lines 50-65, Column 2, lines 18-32). It would be obvious to

those skilled in the art to use a transformer to obtain a voltage of opposite phase, because voltage transformers are particularly useful in cases where inductive voltages cannot be used because of the transformers' size and price.

Regarding Claim 12, Susumu does not disclose the device, wherein the compensation circuit also comprises an amplitude matching stage connected between the artificial star point and the polarity reversal transformer, the amplitude matching stage applying an adjustable fraction of the star point voltage to the polarity reversal transformer. Baumgartl discloses an amplitude matching stage connected between the artificial star point and the polarity reversal transformer T1, the amplitude matching stage applying adjustable fraction of the star point voltage to the polarity reversal transformer (Figure, Column 1, lines 50-65, Column 2, lines 18-32). It would be obvious to those skilled in the art to include an amplitude matching stage to maximize the power transfer by nullifying the effect of scattered-in interference voltages. Claim 13 only recites the conventional functional feature of a transformer, having several winding taps to provide various levels of output voltages on the secondary stage.

Regarding Claim 14, Susumu discloses a frequency response matching stage (see 14 of 12a in Drawing 4 and [0017]). In the above-mentioned combination, the polarity reversal transformer would be on the secondary side to an input of the frequency matching stage, which equalizes a frequency response of the compensation current to the parasitic current. Regarding Claim 15, Susumu discloses a device, wherein an output of the frequency matching stage is connected to the coupling element, Cw (Drawing 2, [0012]). Regarding Claim 16, Susumu discloses a device,

wherein the coupling element is arranged such that coupling of the compensation current takes place into a rotor shaft of the rotor by which the rotor in the bearing is pivotally mounted ([0016], [0017]). Regarding Claim 17, Susumu discloses a device, wherein the coupling element is a capacitor (see Cw in Drawing 2, and [0016]).

7. Claims 18-22 basically recites the elements of Claims 1-2 and 4-5, except the recitation of compensation circuit (Claim 1) versus means for producing a compensation current (Claim 18), and recitation of means for producing compensating current of opposite phase (Claim 18). Regarding claim 22, the coupling means couples the compensation current to the bearing element either directly or indirectly. The compensating current would be of opposite phase. The compensation circuit (see 12, 10 in Figure 3) is designed with frequency characteristics corresponding to the frequency of the shaft current, for a presupposed reduction or such that the shaft current is lost (see [0018]), and the compensating circuit produces compensating current which compensates for the parasitic current. The capacitor 14 of the compensating circuit has phase characteristics opposite to that of the shaft current, and magnitude corresponding to the magnitude of the parasitic current (for the shaft current to be lost, the compensation current has same magnitude and opposite phase).

Therefore, the Susumu reference meets the limitations of Claim 18.

***Response to Arguments***

8. Applicant's arguments filed 3/29/2006 have been fully considered.

Regarding Applicant's statement that the Susumu reference (Figure 3) illustrates that the means consists of passive components and do not produce a compensation current: The compensation circuit (see 12, 10 in Figure 3) is designed with frequency characteristics corresponding to the frequency of the shaft current, for a presupposed reduction of the shaft current or such that the shaft current is lost (see [0018]), and it can be reasonably conclude that the elements of the compensating circuit, in combination produce compensating current which compensates for the parasitic current, therefore the Susumu reference meets the limitations of Claim 1.

The capacitor 14 of the compensating circuit has phase characteristics opposite to that of the shaft current, and magnitude corresponding to the magnitude of the parasitic current (for the shaft current to be lost, the compensation current has same magnitude and opposite phase). Therefore, the Susumu reference meets the limitations of Claim 18.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy Thomas whose telephone number is 571-272-6002. The examiner can normally be reached on Monday - Friday 8:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen W Jackson 6-12-06

LT
June 12, 2006

STEPHEN W. JACKSON
PRIMARY EXAMINER